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FOOD EXPENDITURES BY MEN AND WOMEN.

BY HORACE SECRIST

In budgetary studies it is customary in apportioning family expenditures for food among the members to place the husband and wife in the ratio of 100 to 90.* The evidence in support of this distribution is frequently not given, and in some cases, undoubtedly, it rests on nothing more substantial than mere assumption.† As throwing light on this relationship, the results of a study recently conducted in the statistical laboratory of Northwestern University into the expenditures for food by men and women—mostly students and business people—at a local cafeteria may be of some value. They are given here in rough outline only, no more definite analysis being offered than the nature of the data seems to warrant.

In summary, it may be said that the result supports very closely the commonly used ratio of 90 per cent. for women to 100 per cent. for men.

The data were secured from the manager of a local (Evans-ton, Ill.) cafeteria, distinction being made by him on the checks paid by each customer, (1) between adults and children,‡ (2) between men and women, (3) between the days of the week, (4) between the meals of the day. Details were secured for one week, January 19 to 25, inclusive, 1919, and cover 6,843 individual meals. On the basis of 365 individual meals per year they represent an experience for breakfast of 2.29 years; for dinner, 8.86 years; for supper, 7.60 years; and for all meals (1,095 per year), 6.25 years. Stated in another way,

* See, for instance, Monthly Labor Review, United States Bureau of Labor Statistics, October, 1917, p. 6; *ibid.*, December, 1918, p. 115.

† “. . . the relative consuming powers of the different members of the normal families were estimated after careful comparison and study, and on the basis of these estimates it was assumed as generally true for the purpose of this table—1, that all husbands consume a like amount of food; 2, that the wife consumes 90 per cent. as much food as the husband. . . .” Eighteenth Annual Report of the Commissioner of Labor, 1903, p. 102.

“In general, it appears that the food requirements of men and women of equal activities are in proportion to their bodily weights, and the amounts required by children varies primarily with age. Women, on the average, weigh about eight-tenths as much as men, and it is commonly assumed that if equally active their food requirements will stand in the same proportion.” Monthly Review, December, 1917, p. 6.

‡ Inspection alone was relied on for this purpose, the age distinction being 14 years.

the data represent for an individual man or woman yearly experiences for each of the meals as follows:

TABLE I.
TABLE SHOWING FOOD EXPENDITURE EXPERIENCE IN YEARS.

Meals	Men (years)	Women (years)
Total	2.65	3.60
Breakfast98	1.31
Dinner	3.81	5.05
Supper	3.14	4.46

The distribution of the instances by meals and by the sex of the purchasers is as follows:

TABLE II.
TABLE SHOWING NUMBER AND PERCENTAGE OF FOOD PURCHASERS BY MEALS.

Meals	Total		Men		Women	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total	6,843	100.0	2,897	100.0	3,946	100.0
Breakfast	836	12.2	359	12.4	477	12.1
Dinner	3,233	47.3	1,391	48.0	1,842	46.7
Supper	2,774	40.5	1,147	39.6	1,627	41.2

The following table shows for the men and the women both the number of purchasers and the average expenditure per meal as well as the ratio of the average amount expended by women to that expended by men:

TABLE III.
TABLE SHOWING BY MEALS THE NUMBER OF PURCHASERS OF FOOD, THE AVERAGE EXPENDITURE AND THE RATIO OF EXPENDITURE, BY MEN AND WOMEN.

Meals	Total		Men		Women		Ratio of Expenditures— Women to Men
	Number	Average Expenditure (cents)	Number	Average Expenditure (cents)	Number	Average Expenditure (cents)	
Total	6,843	35	2,897	38	3,946	33	86.8
Breakfast ..	836	21	359	23	477	19	82.6
Dinner	3,233	35	1,391	38	1,842	32	84.2
Supper	2,774	39	1,147	42	1,627	37	88.1

The table above shows that the average expenditure for both men and women for the 6,843 meals was 35 cents, and that the ratio of the average expenditure for all of the meals was 86.8 to 100.0 for women and men. It is interesting to note that the ratio increases with the amount of the expenditure.

The following table classifies the expenditures in the same manner as Table III, but shows the days of the week separately:

TABLE IV.

TABLE SHOWING BY DAYS OF THE WEEK, THE NUMBER OF PURCHASERS OF FOOD, THE AVERAGE EXPENDITURE AND THE RATIO OF EXPENDITURES BY MEN AND WOMEN.

Days	Total		Men		Women		Ratio of Expenditures— Women to Men
	Number	Average Expenditure (cents)	Number	Average Expenditure (cents)	Number	Average Expenditure (cents)	
Total	6,843	35	2,897	38	3,946	33	86.8
Sunday (b)	753	43	335	47	418	40	85.1
Monday (a)	922	35	399	38	523	33	86.8
Tuesday	1,080	34	449	37	631	31	83.8
Wednesday	985	33	429	36	556	31	86.1
Thursday	1,122	33	481	34	641	32	94.1
Friday	1,091	34	453	37	638	33	89.2
Saturday	890	35	351	39	539	33	84.6

The ratios vary from 83.8, as a minimum, to 94.1, as a maximum, with 86.8 as the average. By classifying the days, the meals and the sexes of the purchasers the following ratios of expenditures by women and men are secured:

TABLE V.

TABLE SHOWING BY DAYS OF THE WEEK AND BY MEALS THE RATIOS OF EXPENDITURES FOR FOOD BY MEN AND WOMEN.

Days	Ratios of Expenditures— Women to Men		
	Breakfast	Dinner	Supper
Sunday	83.3	90.7	(b)
Monday	(a)	85.3	88.1
Tuesday	82.6	82.9	88.1
Wednesday	100.0	82.4	90.5
Thursday	81.0	87.9	90.5
Friday	90.5	83.3	92.9
Saturday	79.2	86.1	81.8

(a) No breakfasts.

(b) No suppers.

While the above comparisons are made on the basis of the average (arithmetic mean) expenditure, the same general relations are found to hold when the medians and quartiles of the respective groups are compared. In the table below, these ratios are set out in detail:

TABLE VI.

TABLE SHOWING THE RATIOS OF EXPENDITURES FOR FOOD BY MEN AND WOMEN BASED ON THE ARITHMETIC MEANS, THE MEDIAN AND THE QUANTILES.

Meals	Ratios of Expenditures for Food, Women to Men, based on			
	Arithmetic Means	Medians	First Quartiles	Third Quartiles
Total	86.8	81.6	85.2	89.5
Breakfast	82.6	86.4	88.2	82.1
Dinner	84.2	81.1	82.1	87.2
Supper	88.1	88.6	84.9	90.4

The ratios are noticeably stable for the different averages, varying for all meals from 81.6, as a minimum, in the case of the median, to 89.5 as a maximum, in the case of the third quartile. For the individual meals, dinner, on the basis of the median, with a ratio of 81.1, has the lowest ratio, and supper, on the basis of the third quartile, with a ratio of 90.4, has the highest ratio. Of course, this is only another way of saying that the distributions in the expenditure series for men and women have the same general conformation, the difference of approximately 14 per cent. being constant for the averages taken. Other summary expressions, as for instance, the decils, would reveal the same general relationship.

The actual expenditures by five-cent groups for the sexes and the meals separately are given in the following frequency table.

TABLE VII.

TABLE SHOWING THE EXPENDITURES FOR FOOD BY MEN AND WOMEN AND BY MEALS.

Expenditure Groups (cents)	Meals and Purchasers of Food											
	Total			Breakfast			Dinner			Supper		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total.	6,843	2,897	3,946	836	359	477	3,233	1,391	1,842	2,774	1,147	1,627
3 to 7 ..	15	7	8	5	1	4	6	2	4	4	4	—
8 to 12 ..	188	64	124	84	25	59	57	12	45	47	27	20
13 to 17 ..	516	150	366	252	91	161	183	39	144	81	20	61
18 to 22 ..	763	230	533	220	87	133	356	98	258	187	45	142
23 to 27 ..	982	343	639	134	65	69	552	186	366	296	92	204
28 to 32 ..	849	345	504	70	42	28	497	211	286	282	92	190
33 to 37 ..	672	315	357	34	25	9	350	179	171	288	111	177
38 to 42 ..	758	334	424	19	11	8	336	174	162	403	149	254
43 to 47 ..	702	351	351	14	12	2	297	164	133	391	175	216
48 to 52 ..	563	307	256	2	—	2	224	120	104	337	187	150
53 to 57 ..	407	223	184	1	—	1	159	89	70	247	134	113
58 to 62 ..	179	106	73	—	—	—	77	47	30	102	59	43
63 to 67 ..	100	49	51	—	—	—	60	29	31	40	20	20
68 to 72 ..	75	37	38	—	—	—	38	23	15	37	14	23
73 to 77 ..	36	16	20	—	—	—	18	7	11	18	9	9
78 to 82 ..	17	11	6	—	—	—	9	5	4	8	6	2
83 and over	21	9	12	1	—	1	14	6	8	6	3	3